Partners for Health

Manitoba
Health
Communicable
Disease Control

92-01184/

ANNUAL STATISTICAL REPORT

COMMUNICABLE DISEASE CONTROL

MANITOBA HEALTH - 1989

M. V. FAST, MD, FRCPC

DIRECTOR

RELEASED: JUNE, 1991

ANNUAL STATISTICAL REPORT 1989

COMMUNICABLE DISEASE CONTROL DIRECTORATE

INTRODUCTION

The Communicable Disease Control Directorate of Manitoba Health is responsible for the surveillance of communicable diseases in the province. Case reports are received from laboratories and health care professionals, as specified in the Public Health Act. The Directorate assists local health units in managing communicable diseases, and compiles statistical reports of notifiable diseases. Notification is not accepted unless the physician confirms the occurrence of the illness and/or infection. The statistical reports are shared with local health units and the Laboratory Center for Disease Control, Health and Welfare Canada. The following is a summary of the communicable diseases (excluding sexually transmitted diseases) reported in Manitoba in 1989.

1. SUMMARY OF COMMUNICABLE DISEASES

Table One presents a summary of the number of cases of the reportable communicable diseases in 1989, as well as giardiasis and campylobacteriosis. Statistics for 1988 are presented for comparison.

Table Two presents the age and sex distribution of the reported cases for all of the communicable diseases.

Table Three presents the number of cases which occurred in each health region in the province in 1989 (see map, Appendix A).

Table Four presents the number of cases for selected diseases by the month of onset.

Table Five presents the crude incidence rate for selected communicable diseases.

Table Six presents the age specific rates for selected communicable diseases.

Table Seven presents the crude incidence rate for selected communicable diseases by health region.

These tables are discussed below.

2. VACCINE PREVENTABLE DISEASES

Manitoba spends approximately two million dollars annually for vaccines recommended for routine use in the province, and maintains a computerized record of the immunizations

received by all children born on or after January 1, 1980, in an effort to reduce the incidence of vaccine preventable diseases. The vaccine preventable diseases include measles, mumps, rubella, diphtheria, pertussis, tetanus, polio, hepatitis B and influenza. Other diseases, such as rabies, are also preventable but immunization is recommended only for persons who, because of special circumstances such as their occupation, have been, or may be, exposed to the disease.

The number of **measles** cases remained low with 6 reported in 1989, compared to 5 in 1988. No outbreaks were identified. **Mumps** and **rubella** cases were infrequently reported, although case totals increased. Reporting of mumps and rubella is likely incomplete since the illnesses are mild, and serologic confirmation does not usually affect patient management.

No cases of **diphtheria** were identified in 1989, although toxigenic **C.diphtheriae** continues to be isolated from asymptomatic persons. Diphtheria can only be prevented by maintaining high immunization levels in children and adults. A total of 108 cases of laboratory confirmed **pertussis** were reported in 1989, a twenty-fold increase in the crude incidence rate. This represents the visible tip of an epidemic which involved most of the province. As in the past, clinical illness was most severe in the very young. However, cases were reported in all age groups except those 60 years of age and older. The outbreak was identified first in Westman region, which had the highest crude incidence rate. However, all areas of the province were affected. This epidemic underscores the importance of ensuring that pertussis immunization is up-to-date.

There were no cases of **tetanus** or **polio** in 1989. If immunization levels remain high, these diseases should remain rare.

No human cases of **rabies** occurred in 1989. Nevertheless, rabies vaccine and rabies immune globulin were provided to 52 persons in 1989, for possible exposure to rabid animals. This compares to 62 persons in 1988. As in previous years, most exposures were to dogs and cats.

Cases of **influenza** occur in Manitoba each winter. Annual immunization against influenza is recommended for persons living in institutions, persons with medical illness who may be more likely to have complications of influenza, and persons who are 65 years of age or older. During the winter of 1988-89, 127 cases were confirmed by the Cadham Provincial Laboratory. One hundred and seventeen were influenza A and 10 were influenza B. Figure 1 depicts the seasonal pattern for laboratory confirmed cases of influenza for the winter of 1988/89. The majority of the cases

identified occurred in Winnipeg, however all regions of the province were affected. Thirty-four percent of the cases occurred in children aged 1 to 14 years, and 50% in those 15 to 55 years of age.

In 1989, 36 acute cases of **hepatitis B** were reported. As in previous years, the age specific rate was highest in those aged 20 to 39. Hepatitis B remains an uncommon disease in the health regions outside of Winnipeg, with peak incidence in the inner city area of Winnipeg.

The likely source of infection is given below:

	NUMBER OF CASES	
MODE OF TRANSMISSION	**1988**	**1989**
INTRAVENOUS DRUG USE	19	19
HOMOSEXUAL CONTACT	1	2
HETEROSEXUAL CONTACT	13	4
HEALTH CARE WORKER	1	1
OTHER	3	0
POST TRANSFUSION	1	0
UNKNOWN	21	8
UNABLE TO LOCATE	2	2
TOTAL	61	36

Hepatitis B continues to occur in persons who use intravenous drugs, with no decrease in the number of cases over the past 5 years despite an overall decrease in the total number of cases. There was a marked decline is cases with heterosexual contact as the risk activity, and the number of cases in homosexuals remains low. Prevention efforts need to be targeted to the intravenous drug using population.

Hepatitis B vaccine is provided to persons at acute risk of exposure to the virus. In 1989, vaccine and HBIG were provided to 52 babies born to mothers who were carriers of hepatitis B. This compares to 63 such babies in 1988. All of the babies completed the three dose series of hepatitis B vaccine. Universal screening of prenatals for HBsAg is now in place, decreasing the likelihood that carrier mothers will not be identified.

Figure 2 lists the vaccine products supplied by Manitoba Health in 1989.

3. ENTERIC DISEASES

The following are included in the enteric (gastrointestinal) diseases: amebiasis, campylobacteriosis, verotoxigenic **E.coli** infections, giardiasis, hepatitis A, salmonellosis, shigellosis, typhoid and paratyphoid.

a) Salmonellosis: Figure 3

During 1989, 248 cases of salmonellosis were reported in Manitoba. This compares to 219 for 1988 and 221 for 1987. This represents a 13% increase in cases for 1989, after several years of static incidence. The crude incidence rate is 22 per 100,000, compared to 20 in 1988. A factor of 350 is normally used to estimate the actual number of cases from the number reported, i.e., as many as 86,800 cases may have occurred in 1988.

The distribution of cases by health region and age and sex can be seen in the Tables. The peak incidence is in the southern and western health regions, although all regions reported cases. The average case age is 28 years, a slight increase. An increased number of cases in the 2 - 9 year group was noted with the percentage of cases in this category increasing from 11 to 18. The age specific rate in young children was 71 per 100,000. The peak incidence of cases was again in July and August.

Thirty-eight serotypes were reported. Three serotypes accounted for 37% of cases:

HADAR	34 CASES	14%
TYPHIMURIUM	34 CASES	14%
ENTERITIDIS	24 CASES	9%

Poultry is the primary reservoir for these serotypes, which accounted for 40% of the cases in 1988.

The complete listing of serotypes except typhi and paratyphi follows:

AGONA	14	HAVANA	1
ANATUM	1	HEIDELBERG	22
ARIZONA	1	INFANTIS	10
BARDO	1	JAVA	3
BERTA	4	KENTUCKY	1
BLOCKLEY	3	MBANDAKA	1
BONARIENSIS	1	MBAO	1
BONN	1	MEUNCHEN	10
BOVIS MORBIFICANS	2	MIAMI	1
BRANDENBURG	4	MONTIVIDEO	7
BRAENDERUP	5	NEWPORT	12
ENTERITIDIS	24	PANAMA	4

HADAR	34	TYPHIMURIUM	34
ST. PAUL	11	URBANA	3
SCHWARTZENGRUND	6	UNTYPEABLE	8
SENFTENBERG	2	VIRCHOW	1
STANLEY	4	WELTEVREDEN	1
THOMPSON	9	WEST HAMPTON	1

Infection was epidemiologically linked to:

1. Travel abroad: This was a factor in 32 cases (13%). Areas visited were Mexico (6 cases), Jamaica (3 cases), Philippines (4 cases), South America (4 cases), India (4 cases), USA (3 cases), Africa (3 cases), Cuba (2 cases) and single cases from Antigua, Dominican Republic and Greece.

2. Raw milk consumption was implicated in 4 cases, including one involving goat's milk.

3. Poultry plant workers were involved in 2 cases.

4. Contact with turtles was reported for 7 cases; one additional case involved an iguana.

5. Secondary infections within family units were significant, with: 2 groups of 6 cases; 1 group of 5 cases; and 1 group of 4 cases.

Typhoid and Paratyphoid

Six typhoid and one paratyphoid case involved immigrants, visitors or travel to India.

PARATYPHI	1	TYPHI	6

b) Campylobacteriosis: Figure 3

Campylobacteriosis is not yet a reportable disease. However, all campylobacter laboratory isolations were reported and investigated. The epidemiology of campylobacteriosis is similar to that of salmonellosis, including frequent involvement of raw milk.

During 1989, 182 cases were confirmed in Manitoba, compared to 177 in 1988. Peak age specific rate was in young children. There was regional disparity in the crude incidence rates, which were higher in the rural regions in the southern half of the province. The campylobacter isolations were primarily **C.jejuni** (155 cases). Over 90% of the cases were symptomatic, with 21 persons requiring hospitalization.

The following epidemiologic factors were identified during case investigation:

1. Raw milk consumption: 33 cases.

2. Travel abroad: implicated in 12 cases.

3. Exposure to animals at home or work: 23 cases.

4. Poultry preparation in the home: 14 cases.

These factors are similar to those for salmonellosis.

c) Verotoxigenic E.coli: Figure 4

1988 was the first year in which infections due to **verotoxigenic E.coli** were identified in the province, although the organism has been reported in other parts of Canada. One hundred and fourteen cases were reported in 1989, compared to 57 in 1988, with the majority of cases in July and August. As in 1988, the highest incidence was in suburban Winnipeg, and the highest age specific rate was in young children.

The source of VTEC infection is thought to be meat, especially undercooked hamburger. Laboratory studies by the Cadham Provincial Laboratory demonstrated the presence of verotoxin producing organisms in some frozen and fresh meat samples in Winnipeg.

Infection with VTEC may be associated with renal failure secondary to the hemolytic uremic syndrome. Thirteen such cases were identified in 1989; eleven of the cases had confirmed infection with **E.coli** 0157:H7. Although most cases are epidemiologically linked to a food source, person to person spread may occur especially in day care settings and nursing homes. An outbreak involving two family day cares occurred in 1989, with a total of 15 cases. In nine of the cases, the VTEC identified had the same plasmid profile and phage type, indicating a common origin. Two persons suffered permanent renal impairment.

d) Amebiasis

Entamoeba histolytica is the cause of amebiasis, a protozoan infection which is usually transmitted from person to person by fecal oral route. Thirty eight cases were reported in 1989. As in 1988, peak age specific rates were in children. There was no seasonal pattern. No outbreaks were identified in 1989.

e) Hepatitis A

This viral infection is spread by the fecal oral route. Epidemics occur every few years in areas of Manitoba with poor water and sanitation. Thirty eight cases were reported in 1989, compared to 65 in 1988. Hepatitis A is underreported since most cases occur in young children who may have mild symptoms without jaundice. The highest crude incidence rate was in Norman (27.9 per 100,00) although cases occurred in all regions. As in 1988, highest age specific rates were in children.

f) Shigellosis: Figure 5

This bacterial infection is transmitted in the same manner as hepatitis A and has in the past caused outbreaks in the province. In 1989, fifty-two cases were identified. There were no major outbreaks. As with other enteric diseases, age specific incidence was highest in young children. The highest crude incidence rates were in Thompson region. The Shigella species identified were as follows:

S.dysenteriae	:	1 (source: Mexico)
S.flexneri	:	30
S.sonnei	:	15
S.boydii	:	1
Not recorded	:	5

Infection was associated with:

Living on a reserve	:	14 cases (5 reserves)
Travel	:	19 cases
Mexico	:	12 cases
Caribbean	:	1 case
Central/S.America	:	2 cases
S.E. Asia	:	4 cases
Outbreaks	:	3 cases (1 outbreak)
Person to person	:	4 cases
Unknown	:	8 cases
No information	:	4 cases

g) Giardiasis: Figure 5

Giardiasis is reported by laboratories, but it is not a notifiable disease. Two hundred and ninety cases were reported in 1989. The majority of cases occurred in the summer, in the south central and western part of the province. The age specific rate in young children was 120 per 100,000, compared to 25.8 for the province as a whole. Although cases occurred in all health regions, the city of Winnipeg was relatively spared. In most instances a source could not be definitely identified. Twenty-six percent of

the cases had a second fecal organism, most commonly Blastocystis (41 cases) or nonpathogenic organisms (31 cases).

4. DISEASES OF OTHER SYSTEMS

a) Bacterial meningitis caused by H.influenzae b

In 1989, meningitis was the only notifiable disease caused by **H.influenzae b**, although this organism is associated with septic arthritis, bacteremia and epiglottitis. Eleven cases of meningitis were reported, all in children. Cases were reported from Thompson, Westman and the city of Winnipeg. None of the cases were linked epidemiologically.

b) Bacterial meningitis caused by S.pneumoniae

This organism is the most frequent cause of bacterial meningitis in adults. Five cases were reported in 1988.

c) Bacterial meningitis caused by other organisms

Six cases of meningitis due to other microorganisms were reported. The implicated organisms were Klebsiella (1), staphylococci (3), streptococci (1) and cryptococcus (1).

d) Meningococcal infections

Seven cases of invasive meningococcal disease were reported in 1989, compared to 14 in 1988. The majority of these were meningitis. The age specific incidence rate was highest in young children. The highest crude incidence was in Norman region. Two of the isolates were Group C, two were Group B, one was Group Y, and one was not serogrouped. All of the cases were sporadic and could not be linked epidemiologically.

e) Meningitis/encephalitis caused by viral infections

Twenty three cases of viral meningitis/encephalitis were reported. In 5 cases Coxsackie virus was isolated from the CSF, and ECHO virus from 3 cases. In the remainder of cases the virus was not identified.

f) Tuberculosis

A complete annual report for tuberculosis control is available from the Central Tb Registry. In summary, 101 cases were reported, a decline from 111 in 1988. The age specific incidence rate increased with age, peaking at 17 per 100,00 for those 60 years of age or older. Highest crude incidence rates were in Thompson, the inner city of Winnipeg and Norman, as in 1988.

5. RARE COMMUNICABLE DISEASES

Legionellosis, **brucellosis**, **leprosy**, **malaria**, **listeriosis**, **psittacosis**, **trichinosis** and **tularemia** remain rare diseases in Manitoba. No cases of **Western Equine Encephalitis** were reported.

Draft surveillance case definitions for **Lyme Disease** were used to analyze the serology and clinical picture of all persons who had Lyme serology performed by the Cadham Provincial Laboratory in 1989. Twelve cases were identified which met the draft definitions. However, only 3 **Ixodes dammini** ticks (the usual vector) could be found in the province, and **Borrelia burgdorferi** could not be isolated. Therefore the significance of this finding remains unclear.

TABLES

TABLE ONE	SUMMARY OF COMMUNICABLE DISEASES IN MANITOBA 1989
TABLE TWO	AGE AND SEX DISTRIBUTION, COMMUNICABLE DISEASES IN MANITOBA, 1989
TABLE THREE	REGIONAL DISTRIBUTION, COMMUNICABLE DISEASES IN MANITOBA, 1989
TABLE FOUR	MONTH OF ONSET, SELECTED COMMUNICABLE DISEASES IN MANITOBA, 1989
TABLE FIVE	CRUDE INCIDENCE RATE, SELECTED COMMUNICABLE DISEASES IN MANITOBA, 1989
TABLE SIX	AGE SPECIFIC RATES, SELECTED COMMUNICABLE DISEASES IN MANITOBA, 1989
TABLE SEVEN	CRUDE INCIDENCE RATE, SELECTED COMMUNICABLE DISEASES, BY HEALTH REGION IN MANITOBA, 1989

TABLE ONE SUMMARY OF COMMUNICABLE DISEASES IN MANITOBA

DISEASE	YEAR	
	1988	1989
AMEBIASIS	40	38
BOTULISM	-	-
BRUCELLOSIS	1	-
CAMPYLOBACTERIOSIS	175	182
CHOLERA	-	-
DIPHTHERIA	-	-
E.COLI, VEROTOXIN-PRODUCING	57	115
GIARDIASIS	229	290
HAEMOPHILUS INFLUENZAE B	15	11
HEPATITIS A	65	38
HEPATITIS B	61	36
HEPATITIS, NON-A, NON-B, VIRAL	1	-
HERPES, NEONATAL	-	1
LEGIONELLOSIS	2	2
LEPROSY (HANSEN'S DISEASE)	6	-
LISTERIOSIS	2	4
LYME DISEASE	5	12
MALARIA	2	4
MEASLES	5	6
MENINGITIS, PNEUMOCOCCAL	7	5
MENINGITIS, BACTERIAL, OTHER	2	6
MENINGITIS/ENCEPHALITIS, VIRAL	23	23
MENINGOCOCCAL DISEASE	14	7
MUMPS	7	11
PARATYPHOID FEVER	2	1
PERTUSSIS	6	108
PLAGUE	-	-
POLIOMYELITIS	-	-
PSITTACOSIS/ORNITHOSIS	2	7
Q FEVER	-	-
RABIES (HUMAN)	-	-
RUBELLA	6	12
RUBELLA, CONGENITAL SYNDROME	-	-
SALMONELLOSIS (ALL TYPES)	210	248
SHIGELLOSIS	41	52
TETANUS	-	-
TRICHINOSIS	1	-
TUBERCULOSIS	111	101
TULAREMIA	3	-
TYPHOID FEVER	3	6
YELLOW FEVER	-	-
WESTERN EQUINE ENCEPHALITIS	-	-

Table Two

Age And Sex Distribution
Communicable Diseases In Manitoba 1989

	N\R		< 1		1 - 4		5 - 9		10-14		15-19		20-24		25-29		30-39		40-59		≥ 60	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Amebiasis	1				4	3	2	2	2	3	1	1		1	3	1	4	3	4	2		1
Botulism																						
Brucellosis																						
Campylobacterioses	3		3	26	16	10	8	5	2	6	4	10	8	7	17	8	18	12	4	4	11	
Cholera																						
Diphtheria																						
E.coli,verotoxin-producing	2		1	13	15	8	6	4	7	1	4	6	4	2	6	5	10	1	6	6	8	
Giardiasis	9	4	6	50	43	21	21	11	4	4		8	9	8	13	16	18	18	14	6	7	
Haemophilus Influenzae B		1	1	2	3	2	2															
Hepatitis A, Viral	2			1	2	2	3	2	4	3	2	1	2	2	1	3	4	2		1	1	
Hepatitis B, Viral	5									1	3	4	4	6	4	3	5	2				
Hepatitis Non-a Non-b, Viral																						
Herpes, Neonatal																						
Legionellosis																		1	1			
Leprosy (Hansen's Disease)																						
Listeriosis	1															1	1	1				
Lyme Disease																						
Malaria						1					1			1						1		
Measles					1		1				1		1				2					
Meningitis, Pneumococcal		1	1						1								1			1		
Meningitis, Bacterial, Other		1															2			3		
Meningitis/encephalitis, Viral		3	3	1			1			1		2	1		5	2	2		1		1	
Meningococcal Disease			1	3		1				1										1		
Mumps							1			2	1	1	1			1	2			1	1	
Paratyphoid Fever								1														
Pertussis		5	15	21	25	8	12	3	9	3			1	1	2		2		1			
Plague																						
Poliomyelitis																						
Psittacosis/ornithosis										2					1		1	1		1	1	
Q Fever																						
Rabies (Human)																						
Rubella					2		5	1	1	2							1					
Rubella, Congenital Syndrome																						
Salmonellosis (All Types)	6	10	6	16	29	15	7	7	6	9	1	10	12	9	14	19	11	20	20	9	12	
Shigellosis	2		1	6	6	1	4	1				3	2	3	5	2	5	5	4	1	1	
Tetanus																						
Trichinosis																						
Tuberculosis	3	1		1	2	1	1	2		1	2	7	4	5	2	13	8	10	6	10	22	
Tularemia																						
Typhoid Fever				1	2	1									1			1				
Yellow Fever																						

N/R - not recorded

Table Three

REGIONAL DISTRIBUTION
COMMUNICABLE DISEASES 1989

	N/R	NORMAN	PARKLANDS	WESTMAN	CENTRAL	INTERLAKE	EASTMAN	THOMPSON	WINNIPEG INNER CITY	WINNIPEG NORTH	WINNIPEG SOUTH	WINNIPEG WEST CENTRAL
Amebiasis	1	1	5	1	3		5		15	2	4	1
Botulism												
Brucellosis												
Campylobacterioses	1	2	5	28	22	23	20	3	22	30	18	8
Cholera												
Diphtheria												
E.Coli,Verotoxin-producing	2		4	18	5	2	14	4	13	9	21	23
Giardiasis	4	11	35	79	28	7	19	17	48	16	21	5
Haemophilus Influenzae B				3				3	1	3	1	
Hepatitis A, viral	2	7	1	1	1	2	1	3	6	5	9	
Hepatitis B, viral	4	1	1	4			1		15	3	6	1
Hepatitis non-A non-B, viral												
Herpes, Neonatal												
Legionellosis				1							1	
Leprosy (Hansen's Disease)												
Listeriosis	1	1								1	1	
Lyme Disease												
Malaria				1			1				2	
Measles				1			1			2	2	
Meningitis, Pneumococcal				1			2	1			1	
Meningitis, Bacterial, other						1			2		3	
Meningitis/encephalitis, viral				4			1	2	6	3	5	2
Meningococcal disease		2		1				1	3			
Mumps				3	1		2		1	2	1	1
Paratyphoid Fever				1								
Pertussis		1	4	63	14	2	1	4	10	2	6	1
Plague												
Poliomyelitis												
Psittacosis/ornithosis				3					3		1	
Q Fever												
Rabies (Human)												
Rubella			6			1			2		2	1
Rubella, Congenital Syndrome												
Salmonellosis (All Types)	6	2	5	50	24	18	26	11	43	21	31	11
Shigellosis	2	2	3	5	3		3	6	12	4	6	6
Tetanus												
Trichinosis												
Tuberculosis	3	5	6	7	3	4	2	10	39	12	7	3
Tularemia												
Typhoid Fever									3	1	2	
Yellow Fever												

Table Four

1989 MONTH OF ONSET

SELECTED COMMUNICABLE DISEASES

	N/R	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Amebiasis				1				2		3	4	3	4	3	7	4	6	1	
Campylobacteriosis	12							6	6	13	8	15	18	17	33	17	23	12	2
E.Coli,Verotoxin-producing						3	5	2	4	2	3	4	20	41	18	11	2		
Giardiasis								22	11	15	26	18	16	26	41	46	22	29	18
Haemophilus Influenzae B			1			1	1		1			2	2	3					
Hepatitis A, viral						3	1	1	2	9	4	1	3	1	3	4	4	2	
Hepatitis B, viral					2	3	5	3	2	3	4	3	3	2	2	2	2		
Meningococcal disease							3				1			1		1		1	
Salmonellosis (All Types)	1		1		1	7	14	19	10	15	16	19	24	40	27	22	23	8	1
Shigellosis						2	3	5	8	13	4	6	1	2	3	1	3	1	

Table Five

CRUDE INCIDENCE RATE,
SELECTED COMMUNICABLE DISEASES, 1989

RATE PER 100,000

DISEASE	YEAR	
	1988	1989
AMEBIASIS	3.55	3.38
CAMPYLOBACTERIOSIS	15.55	16.17
E.COLI, VEROTOXIN PRODUC.	5.06	10.21
GIARDIASIS	20.35	25.77
HAEMOPHILUS INFLUENZAE B	1.33	0.98
HEPATITIS A	5.78	3.38
HEPATITIS B	5.42	3.20
MEASLES	0.44	0.53
MENINGOCOCCAL DISEASE	1.24	0.62
PERTUSSIS	0.53	9.59
SALMONELLOSIS	18.74	22.03
SHIGELLOSIS	3.64	4.62
TUBERCULOSIS	9.95	8.97

Table Six

AGE SPECIFIC RATES, SELECTED COMMUNICABLE DISEASES, 1989

RATE PER 100,000

DISEASE	AGE				
	<1-4	5-19	20-39	40-59	>=60
AMEBIASIS	8.2	4.4	3.2	2.7	.5
CAMPYLOBACTERIOSIS	51.4	14.0	18.1	7.1	7.9
E.COLI.VEROTOXIN PROD.	33.9	11.9	8.8	3.1	7.4
GIARDIASIS	120.3	24.3	19.2	14.3	6.9
HAEMOPHILUS INFLUENZ.B	8.2	1.6	-	-	-
HEPATITIS A	3.5	6.4	3.5	.9	1.1
HEPATITIS B	-	1.6	6.9	.9	-
MEASLES	1.2	.8	.8	-	-
MENINGOCOCCAL DISEASE	4.7	.8	-	-	.5
PERTUSSIS	77.1	13.9	1.6	.5	-
SALMONELLOSIS	71.3	17.9	20.0	17.8	11.1
SHIGELLOSIS	15.2	2.4	5.3	4.0	1.1
TUBERCULOSIS	4.7	2.8	10.4	7.1	17.0

Table Seven

CRUDE INCIDENCE RATE, SELECTED COMMUNICABLE DISEASES,
BY HEALTH REGION, 1989

RATE PER 100,000

DISEASE	HEALTH REGION								
	THOMPSON	WESTMAN	WPG SUB-DIV	INNER CITY	CENTRAL	EASTMAN	INTERLAKE	NORMAN	PARKLAND
AMEBIASIS	-	.8	1.7	6.8	3.1	5.5	-	4.0	10.2
CAMPYLOBACTERIOSIS	7.2	23.4	16.2	10.0	23.0	21.9	30.9	8.0	10.2
E.COLI.VEROTOXIN PROD.	9.7	15.0	24.0	3.4	5.2	15.3	2.7	-	8.2
GIARDIASIS	41.0	66.0	11.8	19.0	29.3	20.8	9.4	43.9	71.6
HAEMOPHILUS INFLUENZ.B	7.2	25.1	1.0	.5	-	-	-	-	-
HEPATITIS A	7.2	.8	3.4	2.7	1.1	1.1	2.7	27.9	2.1
HEPATITIS B	-	3.3	2.5	6.8	-	1.1	-	4.0	2.1
MEASLES	-	.8	1.0	-	-	1.1	-	-	-
MENINGOCOCCAL DISEASE	2.4	.8	-	1.4	-	-	-	8.0	-
PERTUSSIS	9.7	52.6	2.2	4.5	14.6	1.1	2.7	4.0	8.2
SALMONELLOSIS	26.6	41.8	15.4	19.5	25.1	28.5	24.2	8.0	10.2
SHIGELLOSIS	14.5	4.2	3.9	5.4	3.1	3.3	-	8.0	6.1
TUBERCULOSIS	24.1	5.9	5.4	17.7	3.1	2.2	5.4	19.9	12.3

FIGURES

FIGURE 1. INFLUENZA A AND B, BY MONTH OF ONSET, 1988/89

FIGURE 2. VACCINE DISTRIBUTION IN MANITOBA, 1989

FIGURE 3. SALMONELLOSIS AND CAMPYLOBACTERIOSIS, BY MONTH OF ONSET, 1989

FIGURE 4. VEROTOXIGENIC E.COLI, BY MONTH OF ONSET, 1989

FIGURE 5. GIARDIASIS AND SHIGELLOSIS, BY MONTH OF ONSET, 1989

APPENDIX A: REGIONAL MAP, MANITOBA

APPENDIX B: MANITOBA POPULATION

Figure 1

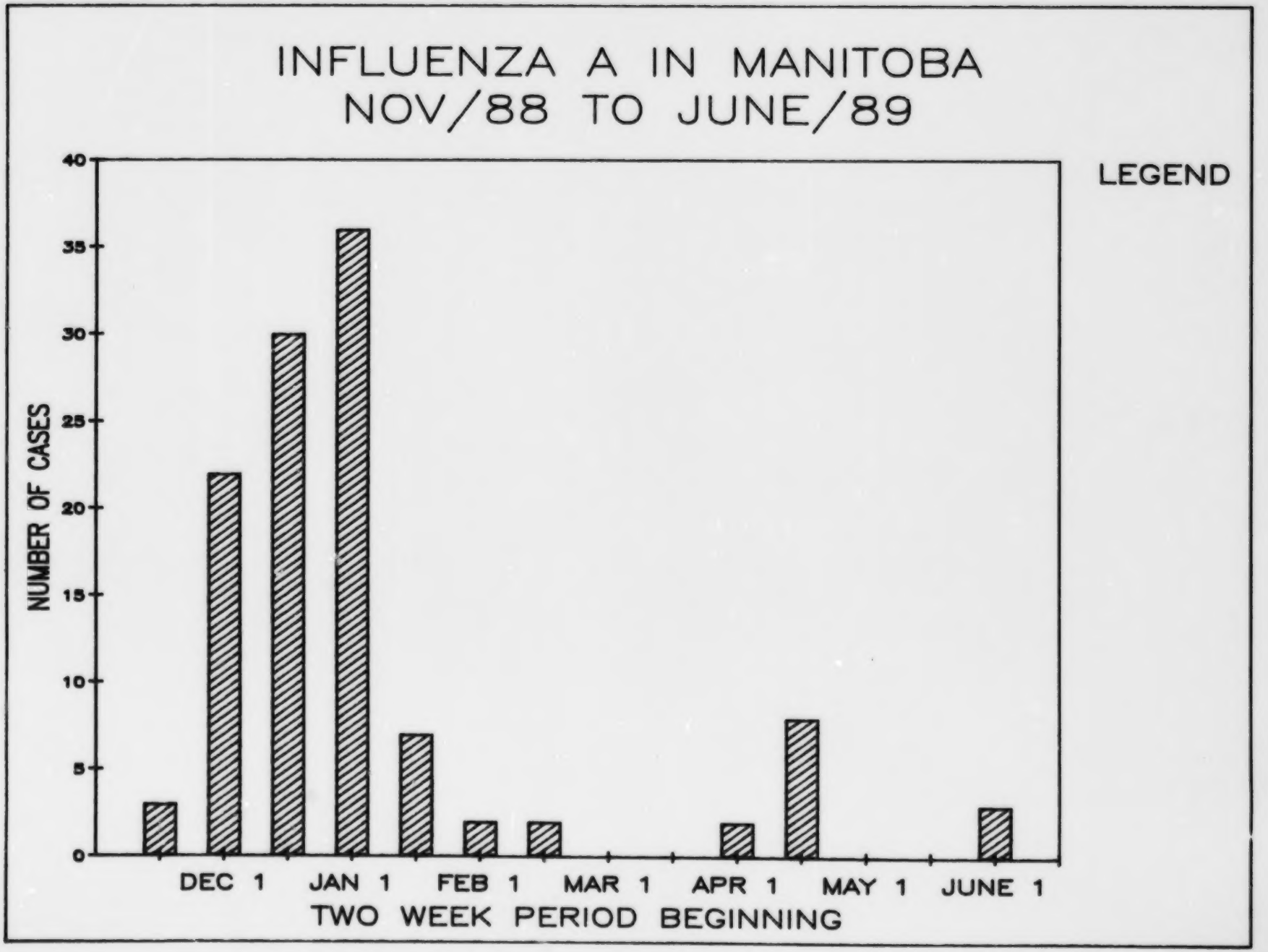

INFLUENZA A IN MANITOBA
NOV/88 TO JUNE/89
LEGEND
NUMBER OF CASES
40
35
30
25
20
15
10
5
0
DEC 1
JAN 1
FEB 1
MAR 1
APR 1
MAY 1
JUNE 1
TWO WEEK PERIOD BEGINNING

Figure 2 1989 VACCINE DISTRIBUTION IN MANITOBA

ITEM	DOSE PER UNIT	TOTAL # UNITS DISTRIB.	TOTAL # DOSES DISTRIB.
BED (Tetanus Toxoid)	5.0	9	45
BOARD (Tetanus Toxoid)	10.0	0	0
BROWN (Diphtheria Antitoxin)	1.0	5	5
BUD (Typhoid)	10.0	4	40
COMET (Diphtheria Toxoid)	25.0	5	125
DAB (Dpt Adsorbed)	5.0	2794	13970
DASH (Dpt Adsorbed)	10.0	8021	80210
DUNE (Dpt & Polio Adsorbed)	5.0	29	145
FENCE (Oral Polio)	10.0	12937	129370
LAWN (Diptheria-Tetanus)	10.0	1276	12760
LIGHT (Diptheria Toxoid-reactors)	5.0	36	180
MENOTET (Meningococcal)	10.0	40	400
METEOR (TD Polio Adsorbed)	5.0	183	915
PEAT (Diphtheria-Tetanus)	5.0	743	3715
PREPOST (Rabies)	1.0	469	469
RIG (Rabies Immune Globulin)	0.2	149	30
ROSE (Typhoid)	20.0	306	6120
SCREEN (Diphtheria Toxin)	4.0	8	32
SINGLE (Measles)	1.0	1	1
SOLE (Rubella)	1.0	6210	6210
SOLID (Diphteria-Tetanus)	10.0	2884	28840
SOUND (Diphteria-Tetanus)	5.0	5435	27175
STAR (Diphtheria Fluid)	3.0	58	174
TETHER (Tetanus Immune Globulin)	0.5	40	20
VICTOR (Cholera)	5.0	129	645
VIBRIO (Cholera)	20.0	160	3200
WHOOP (Pertussis)	5.0	33	165
WIRE (Oral Polio)	10.0	947	9470
OCEAN (Poliomyelitis)	5.0	230	1150
MMRII (Measles Mumps Rubella)	10.0	2442	24420
BOND (Botulism Anitoxin)	1.0	0	0
IRON (Fluzone Adult)	10.0	9129	91290
ORE (Fluzone Pediatric)	10.0	405	4050
HBV (Hepatitis B Vaccine 3ml	3.0	298	894
HBV (Hepatitis B Vaccine) .5ml	1.0	143	143
HBV (Hepatitis B Vaccine) 1ml	1.0	7	7
HBIG (Hept B Immune Globulin).5ml	1.0	25	25
HBIG (Hept B Immune Globulin) 1ml	0.2	31	6
HBIG (Hept B Immune Globulin) 5ml	1.0	38	38
GAMASTAN (Immune Serum Globulin)	4.0	456	1824
DALE (Dpt polio absorbed)	5.0	0	0
(Botulinus Antitoxin)	5.0	0	0

Figure 3

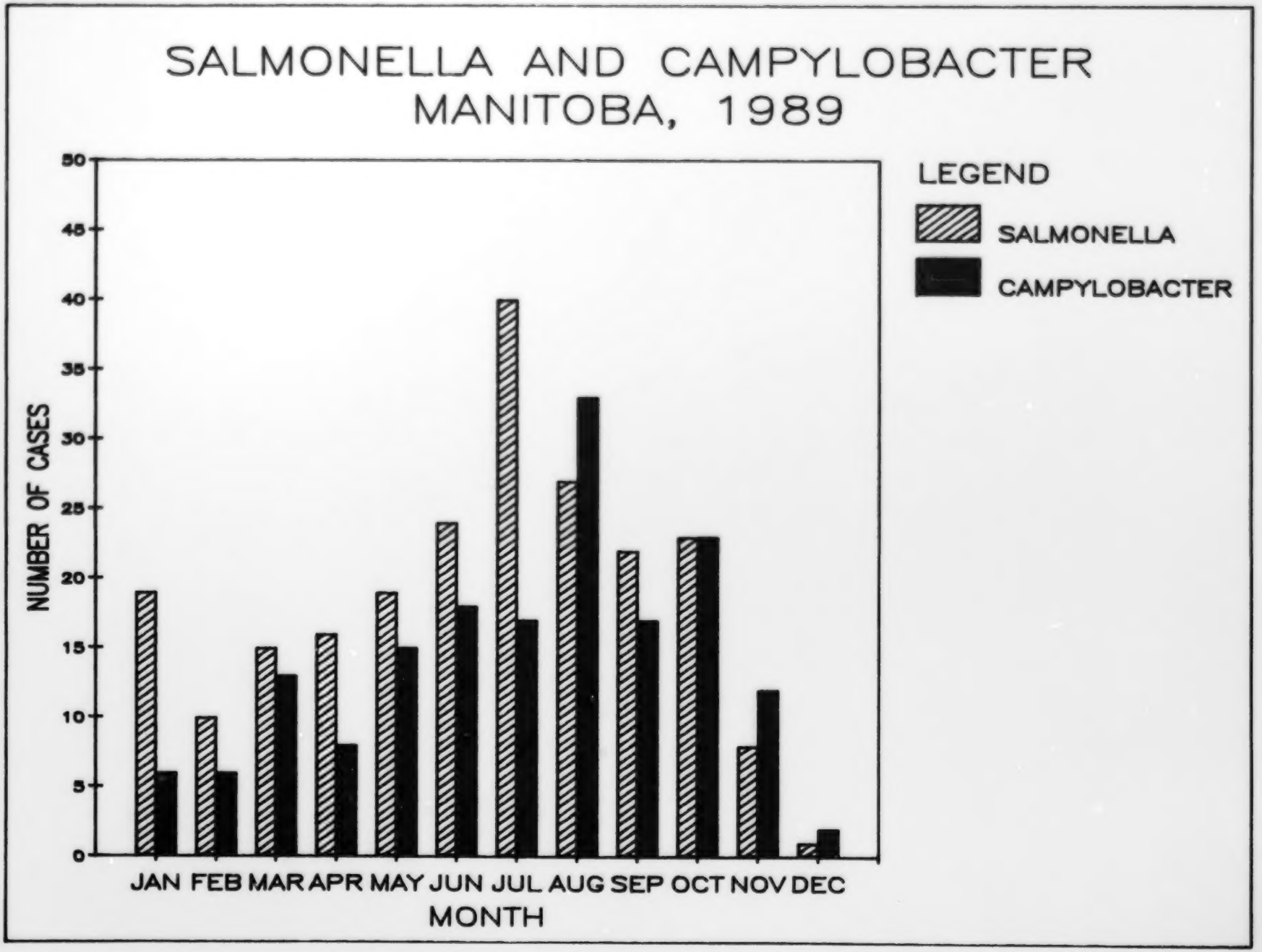

SALMONELLA AND CAMPYLOBACTER
MANITOBA, 1989
LEGEND
SALMONELLA
CAMPYLOBACTER
NUMBER OF CASES
0
5
10
15
20
25
30
35
40
45
50
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
MONTH

Figure 4

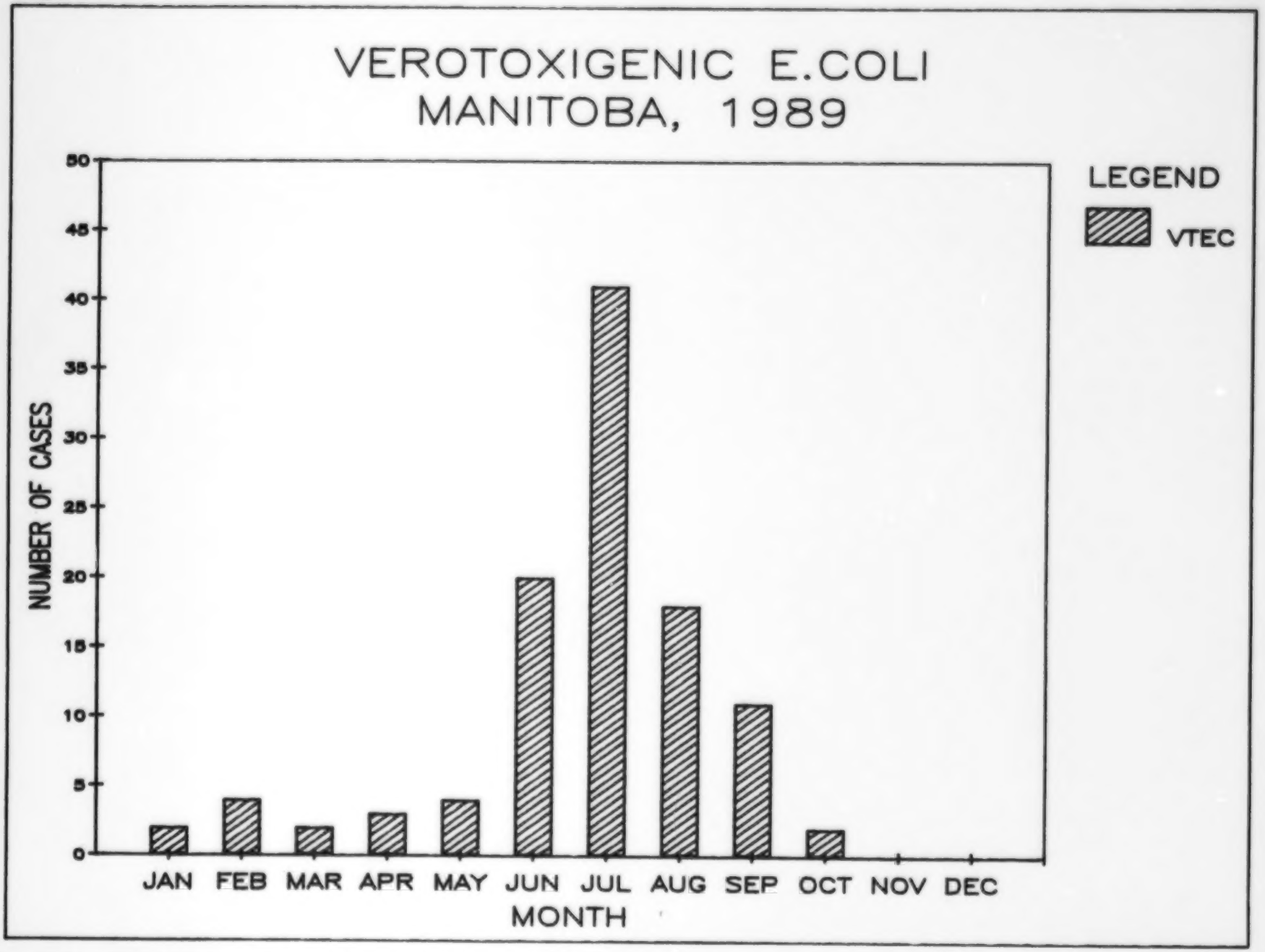
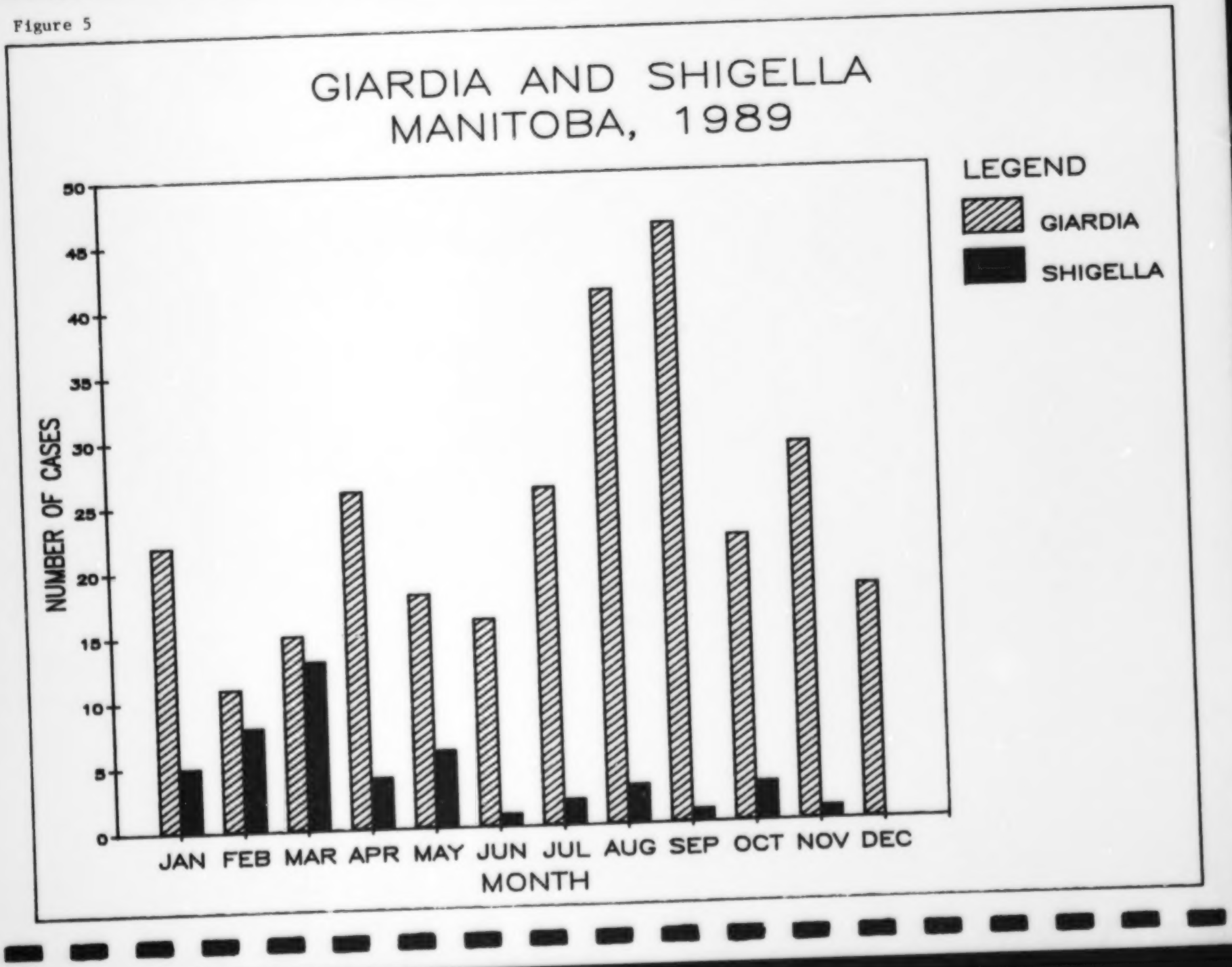

VEROTOXIGENIC E.COLI
MANITOBA, 1989
LEGEND
VTEC
NUMBER OF CASES
0
5
10
15
20
25
30
35
40
45
50
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTH

Figure 5


GIARDIA AND SHIGELLA
MANITOBA, 1989
LEGEND
GIARDIA
SHIGELLA
NUMBER OF CASES
0
5
10
15
20
25
30
35
40
45
50
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
MONTH

Appendix A

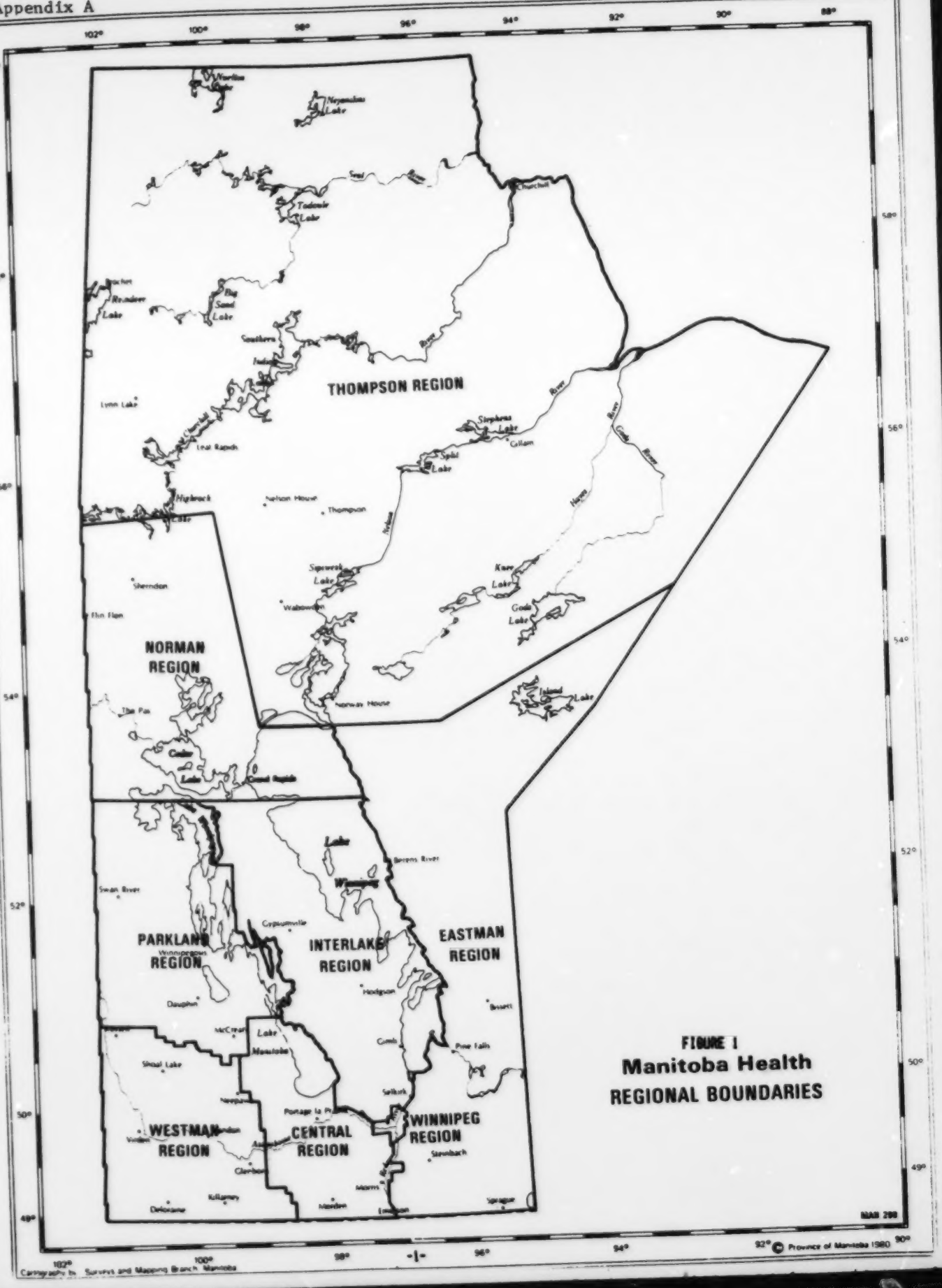


FIGURE 1
Manitoba Health
REGIONAL BOUNDARIES

Commission

A44R724 POPULATION BY AGE AND SEX
TOTAL MANITOBA POPULATION

TOTAL POPULATION	MALE	FEMALE
1,125,414	556,735	568,679

FILE STATUS AS AT YR	MO	DAY	REPORT PRODUCED YR	MO	DAY	PAGE
88	06	01	88	12	03	304

AGE GROUP	TOTAL PER AGE GROUP	MALE	FEMALE
<1	16,906	8,606	8,300
1	17,282	8,878	8,404
2	17,304	8,857	8,447
3	17,157	8,796	8,361
4	16,962	8,725	8,237
SUB TOTAL	85,611	43,862	41,749
5	16,807	8,634	8,173
6	16,619	8,585	8,034
7	16,568	8,514	8,054
8	16,289	8,432	7,857
9	16,208	8,238	7,970
SUB TOTAL	82,491	42,403	40,088
10	16,287	8,325	7,962
11	16,063	8,194	7,869
12	16,668	8,612	8,056
13	16,719	8,583	8,136
14	16,562	8,545	8,017
SUB TOTAL	82,299	42,259	40,040
15	16,709	8,618	8,091
16	17,168	8,770	8,398
17	17,876	9,081	8,795
18	17,430	8,822	8,608
19	17,327	8,857	8,470
SUB TOTAL	86,510	44,148	42,362
20	16,927	8,589	8,338
21	17,337	8,600	8,737
22	18,433	9,210	9,223
23	19,905	10,073	9,832
24	20,609	10,366	10,243
SUB TOTAL	93,211	46,838	46,373
25	20,935	10,433	10,502
26	20,954	10,597	10,357
27	20,743	10,570	10,173
28	20,576	10,522	10,054
29	19,790	10,011	9,779
SUB TOTAL	102,998	52,133	50,865
30	19,619	9,969	9,650
31	19,500	9,818	9,682
32	18,977	9,670	9,307
33	19,006	9,564	9,442
34	18,547	9,310	9,237
SUB TOTAL	95,649	48,331	47,318
35	17,600	8,707	8,893
36	17,162	8,718	8,444
37	16,597	8,214	8,383
38	16,349	8,317	8,032
39	16,021	8,078	7,943
SUB TOTAL	83,729	42,034	41,695
40	16,152	8,059	8,093
41	16,237	8,246	7,991
42	13,457	6,696	6,761
43	12,703	6,526	6,177
44	12,615	6,436	6,179
SUB TOTAL	71,164	35,963	35,201
45	12,321	6,124	6,197
46	11,230	5,633	5,597
47	11,073	5,516	5,557
48	10,535	5,286	5,249
49	10,235	5,122	5,113
SUB TOTAL	55,394	27,681	27,713
50	10,119	5,098	5,021
51	9,634	4,815	4,819
52	9,868	4,880	4,988
53	9,670	4,892	4,778
54	9,437	4,796	4,641
SUB TOTAL	48,728	24,481	24,247
55	9,923	5,002	4,921
56	9,893	4,905	4,988
57	9,619	4,720	4,899
58	9,945	4,919	5,026
59	9,570	4,615	4,955
SUB TOTAL	48,950	24,161	24,789
60	9,800	4,775	5,025
61	9,562	4,618	4,944
62	9,587	4,527	5,060
63	9,742	4,575	5,167
64	9,610	4,461	5,149
SUB TOTAL	48,301	22,956	25,345
65	9,669	4,424	5,245
66	9,511	4,275	5,236
67	9,106	4,080	5,026
68	8,824	4,035	4,789
69	7,946	3,646	4,300
SUB TOTAL	45,056	20,460	24,596
70	7,584	3,440	4,144
71	7,486	3,376	4,110
72	7,286	3,198	4,088
73	7,563	3,346	4,217
74	6,974	3,070	3,904
SUB TOTAL	36,893	16,430	20,463
75	6,498	2,787	3,711
76	5,856	2,499	3,357
77	5,487	2,297	3,190
78	5,115	2,139	2,976
79	4,509	1,799	2,710
SUB TOTAL	27,465	11,521	15,944
80	4,252	1,708	2,544
81	3,789	1,449	2,340
82	3,514	1,345	2,169
83	3,066	1,117	1,949
84	2,758	1,053	1,705
SUB TOTAL	17,379	6,672	10,707
85	2,403	902	1,501
86	2,074	766	1,308
87	1,727	561	1,166
88	1,465	471	994
89	1,213	391	822
SUB TOTAL	8,882	3,091	5,791
90	1,004	279	725
91	865	246	619
92	713	208	505
93	558	151	407
94	388	96	292
SUB TOTAL	3,528	980	2,548
95	340	91	249
96	230	62	168
97	173	43	130
98	115	37	78
99	155	47	108
SUB TOTAL	1,013	280	733
100	54	15	39
101	35	15	20
102	30	8	22
103	18	3	15
104	10	2	8
SUB TOTAL	147	43	104
105	3	1	2
106	2	1	1
107	4	2	2
108	4	2	2
109	1	1	0
SUB TOTAL	14	7	7
110	0	0	0
111	0	0	0
112	0	0	0
113	2	1	1
114	0	0	0
SUB TOTAL	2	1	1
115 +	0	0	0
TOTAL POPULATION		MALE	FEMALE
1,125,414		556,735	568,679

SELECTED ANALYSES

AGE GROUP	TOTAL PER AGE GROUP	MALE	FEMALE
0 - 17	302,154	154,993	147,161
18 - 64	682,881	342,257	340,624
65 - 79	109,414	48,411	61,003
80 +	30,965	11,074	19,891

AGE GROUP	TOTAL PER AGE GROUP	MALE	FEMALE
65 +	140,379	59,485	80,894
70 +	95,323	39,025	56,298
85 +	13,586	4,402	9,184
90 +	4,704	1,311	3,393

AGE GROUP	TOTAL PER AGE GROUP	MALE	FEMALE
0 - 14	250,401	128,524	121,877
15 - 24	179,721	90,986	88,735
25 - 34	198,647	100,464	98,183
35 - 44	154,893	77,997	76,896
45 - 54	104,122	52,162	51,960
55 - 64	97,251	47,117	50,134
65 - 74	81,949	36,890	45,059
75 +	58,430	22,595	35,835

FORM M REC 12 (MD 174) R 1984

END OF REPORT